



Elizabeth M. Murphy  
Secretary  
Securities and Exchange Commission  
100 F Street, NE  
Washington, DC 20549 -1090

December 10, 2014

Re: Plan to Implement a Tick-Size Pilot Program

Dear Ms. Murphy:

The TABB Group is a financial markets research and advisory firm focused on researching financial and capital markets trading and infrastructure issues. To that extent we would like to submit our comments on the Tick-Size Pilot Program stemming from the 2012 Jumpstart Our Business Startups Act ("JOBS Act").

While I am a strong proponent of the Tick-Size Pilot, I do not foresee positive results, such as greater research coverage, more small-/mid-cap IPOs, a wider diversity of market makers, reduced impact of high-frequency traders, lower transaction costs, or a better quality of equity markets. The only result we can foresee from the pilot will be greater displayed liquidity and larger transaction size, however, that liquidity may be just as transient or hard to grab as it is today.

The Pilot, due to the Trade-At provision, will also introduce a level of complexity and cost that could create real problems (à la Knight's and Goldman's errant algorithms in the equities and options markets). The Trade-At rule's displayed liquidity routing requirements and the institutional natural desire to trade at a hidden mid-point will cause exchanges, market makers, and brokers to develop new, complex trading strategies that will be a programming challenge and possibly cause significant systemic risk. Eliminating Trade-At from the Pilot would eliminate much of this complexity.

But before I go into too much detail, I would like to start at the beginning.

The first challenge in measuring a Tick-Size Pilot that fulfills the intent of the JOBS Act to stimulate IPOs and create jobs is that the test is just too short. If the end result is to stimulate the market for small- and mid-cap IPOs by creating incentives for boutique investment banks to build out research, market making, and banking businesses, a yearlong pilot does not provide enough time to hire qualified people, develop the infrastructure, and create a pipeline to demonstrate measurable results.

This might be easier if smaller investment banks earned market-making spreads, but the current crop of high-speed market makers are not the integrated merchant and investment banks of the past. Currently, most market making activity is done by small, independent market-making firms that have no research capabilities or banking prowess. While widening spreads should increase market makers' profitability, the likelihood of these firms investing their market-making profits

into developing a research and banking business is highly unlikely, especially given the one-year runway for this test.

If new small-cap research and underwriting aren't success factors, what would other success factors be?

Given a yearlong test, I believe that we could see demonstrable results for these six metrics:

- Increased market efficiency (reduced transaction costs);
- Greater liquidity;
- Larger transaction size;
- Increased certainty of execution;
- Less off-exchange activity and greater price discovery; and
- An increase in the body of market-making firms outside traditional high-frequency market-making firms.

### **Validity of Success Factors**

Most markets' success is measured by increased market efficiency, reduced transaction costs, and increased market quality (a combination of price, cost, liquidity, and execution certainty). In general, lower costs are better. Transaction costs, however, are tricky to measure. At the elemental level, transaction cost is easiest to measure at the execution point. But elemental transaction cost may not be the best metric to gauge the Pilot's results, because just measuring elemental transaction efficiency will fail, as we are increasing a core component of explicit trading cost (spread).

To declare success, we will need to measure transaction cost at the large-order level, but that is not easy either. Larger investors typically invest using larger-sized transactions that are broken up into smaller pieces and executed over time. By breaking up larger blocks into smaller pieces, the information leakage of those smaller pieces can inflate the cost of the whole block over what would be expected if the order were traded in a larger size. If that is the case, what appears to be an efficient market for smaller trades may actually be inefficient for the full order. Measuring the execution efficiency for 100,000-share orders by analyzing 200-share prints will give you a completely incorrect answer – unless you know how each of the 200-share executions aggregates into the 100,000-share block.

This is the critical premise of the wider Tick-Size Pilot. The problem is that, unfortunately, regulators and academics do not have access to this block-level transactional information. The block-level transaction costs will need to be provided by the institutional investors themselves.

### **Liquidity, Transaction Size, Less Dark Liquidity, and More Market Makers as Metrics**

Liquidity will be another success factor. While reducing the number of ticks per dollar most likely will increase displayed liquidity, if wider ticks bring more trading volume into the market, it will certainly be positive.

Transaction size will be a factor too. The current average trade size is approximately 200 shares. If this number significantly increases, it will be a positive. While trade size is a factor, however, it

most likely is less important than market efficiency. If trade size increases but market efficiency decreases, most investors would look at this as an overall negative.

A reduction in off-exchange trading would be viewed by some, especially exchanges, as a positive as well. Currently, approximately 37% of the market trades outside of exchanges. If only the transparent order book is included, this number declines to only 54% of US shares traded. As fewer orders are executed through transparent order books, it is thought that price competition decreases, spreads widen, and the market becomes less efficient. While reducing off-exchange volume is a goal of the exchanges, and price discovery/competition is important for all markets, if more volume executes on-exchange but market efficiency declines, then as is true of trade size, I believe market efficiency will trump more exchange-traded volume.

An increase in execution certainty would also be a major step forward. Execution certainty is the ability to execute at the displayed transaction price, especially if that price has been stable. The challenge with a fragmented trading environment is that liquidity is distributed over multiple venues. The ability to execute displayed liquidity at the displayed price is a major challenge for larger investors. If investors are able to take liquidity more easily in larger size, we should see larger executions, fewer cancellations, and fewer broker routes. If we see these signs, the Pilot would be a success.

The last metric I believe will be used to validate the Pilot will be whether more traditional market makers are drawn into providing liquidity, diminishing the role of HFT market makers. While this should make no demonstrable market quality difference, it appears that many market participants and the media are distrustful of the quality of high-frequency/machine-based market makers. Again, I don't believe this will sway an SEC focused on market quality metrics; however, it may influence Congress, which is the instigator of this Pilot.

## **Predicted Results**

If we analyze the anticipated results of the three pilot programs against the six success metrics, we should be able to predict which pilot, if any, will have the greatest chance of being successful or, at the least, what their outcomes might be.

### **Pilot 1 - Quote Nickels, Trade at Any Increment**

The results of Pilot 1 will be the easiest to predict. In this pilot, there will be a mandatory nickel quote, but firms can execute at any increment. In this test program, while it may stay somewhat efficient, I believe the market will go dark. Currently, in low-priced and less-liquid stocks, the average amount of off-exchange volume is in the low to mid-40% range (see Exhibit 1). If firms are allowed to execute at any increment in between the quote, but can only quote in nickels, then we would expect that the off-exchange percentage will increase into the range of 60% or more and may reach 70%. While the bulk of flow would go dark, market efficiency will remain fairly high because investors will find each other in dark pools and in dark exchange mechanisms that will allow any trade to be executed at any price.

The one major downside of this pilot could be that price discovery completely deteriorates as off-exchange trading greatly increases. This would be a very detrimental outcome.

## Exhibit 1

### Non-ETF Stocks' TRF and Consolidated Volume Share Matrix

1st Row	Median TRF Share		Stocks >40% TRF
2nd Row	Count of stocks (non-ETF)		Stocks <30% TRF
3rd Row	% of Non-ETF CADV for that box		< 1% non-ETF CADV
			> 3% non-ETF CADV
			> 100 stocks

Sep-14	>\$100	\$50-\$100	\$20-\$50	\$10-\$20	\$5-\$10	\$2-\$5	\$1-\$2	<\$1
<100K	35.4%	34.9%	48.6%	44.6%	44.3%	46.0%	50.0%	39.3%
	55	134	1,044	802	394	271	105	80
	0.02%	0.08%	0.6%	0.5%	0.2%	0.2%	0.08%	0.05%
100K-500K	28.0%	29.6%	34.3%	38.9%	42.3%	46.7%	54.4%	47.5%
	62	230	571	435	235	165	79	49
	0.4%	1.2%	2.8%	1.9%	1.1%	0.8%	0.4%	0.2%
500K-1M	29.1%	29.2%	31.9%	35.4%	37.5%	46.1%	51.8%	51.8%
	53	120	245	106	65	43	25	12
	0.7%	1.6%	3.4%	1.4%	0.9%	0.59%	0.34%	0.15%
1M-2M	30.6%	30.8%	32.9%	33.3%	39.6%	43.0%	49.4%	44.7%
	45	130	184	99	42	33	13	12
	1.2%	3.7%	5.0%	2.8%	1.1%	0.8%	0.4%	0.3%
2M-5M	31.7%	31.4%	31.9%	32.9%	33.7%	43.0%	47.5%	42.5%
	22	96	128	56	33	26	5	7
	1.2%	5.6%	7.7%	3.3%	1.9%	1.7%	0.3%	0.4%
5M-10M	27.9%	30.3%	33.9%	35.3%	35.9%	43.8%	53.5%	
	5	20	42	24	18	15	2	0
	0.6%	2.7%	5.6%	3.2%	2.3%	1.9%	0.3%	
10M-20M	37.6%	31.9%	32.4%	37.7%	33.4%	41.5%		34.8%
	1	8	14	16	4	4	0	2
	0.3%	2.1%	3.6%	4.0%	1.2%	1.1%		0.4%
20M-50M		43.5%	33.0%	31.6%	42.1%	45.1%		
	0	2	6	3	2	1	0	0
		1.1%	3.2%	1.9%	1.3%	0.7%		
>50M	40.6%	32.1%	41.1%	40.2%				
	1	1	1	1	0	0	0	0
	1.4%	1.2%	1.1%	1.6%				

Note: In September 2014, there were a total 6,504 non-ETF stocks.

Source: NYSE, TABB Group

## Pilots 2 and 3 – Quote and Trade at Nickels Only

Pilots 2 and 3 are very similar, with the exception of the Trade-At provision in Pilot 3. Trade-At will force orders matching at the bid or offer onto exchanges (more accurately, displayed markets). Pilots 2 and 3 will require nickel quotes and trading that will collapse the current 100 price points per dollar (pennies) to only 20 price points per dollar. Collapsing the number of price points will increase the displayed liquidity at each of these price points. The question is, will increased displayed liquidity translate into tradable liquidity? Will firms be able to trade against that liquidity or will it disappear when firms try to access it? And once they trade, will the loss in trading efficiency caused by nickel trading increments be gained by increasing accessible size, or will that displayed liquidity be as temporal as the penny spread market of today, which acts like scattering roaches to light when large size arrives?

This is the ultimate question. Will efficiency gained by trading in larger size outweigh the efficiency lost by eliminating finer-grained trading increments?

The easiest prediction about Pilot 3 compared to Pilot 2 will be that Pilot 3 will force more flow into displayed markets. That is the whole point of a Trade-At rule. If the current rate of off-exchange trading is approximately 36%, then we should anticipate that, under Pilot 3, this number will decrease into the 20% range (20% to 29%) as matching between ticks would be limited to the mid-point. That said, increasing the tick size will put more pressure on firms to execute at the mid-point so the change in dark liquidity may not be as drastic as some believe.

We will also see broker dark pools converted into displayed markets (ECNs). Currently, Credit Suisse and Citi run displayed markets, Light Pool and LavaFlow (which recently announced it was shuttering), respectively. Either switching dark pools to ECNs or developing new ECNs may help brokers comply with Pilot 3. An example of this is IEX's push to gain exchange status and move out from the dark into a more traditional exchange model.

The detrimental impact of the Trade-At rule, if there were no provisions to price-improve retail trades on displayed markets, would affect wholesalers and, very specifically, retail investors, who receive a much greater price improvement from wholesale internalization than they currently get at exchanges. While Trade-At has carve-outs for retail order flow price improvement, the proposed rules require brokers to confirm that orders receiving price improvement are not generated by machine. This is actually more challenging to define and attest to as, increasingly, retail brokerage firms are providing their clients with more automated trading mechanisms. This will cause Pilot 3 to have a negative impact on price improvement offered through either exchange-based retail liquidity programs or broker ECNs; hence, we would assume that retail investors and wholesalers would be significantly harmed.

Given wider tick sizes and an uncertain matching model, we could see payment for order flow dramatically increase in Pilot 1 and possibly Pilot 2 stocks. If payment for order flow is at a base level today when mandated spreads are narrow, if we widen mandated spreads by five times, we should expect that the incentives for trading against retail flow will only increase. That said, if internalization structures are hampered, which they most certainly will be under Pilot 2 and especially under Pilot 3, it will be interesting to see how the value of retail liquidity streams are recycled back to individual investors, if at all.

### **Trade-At Complexity**

Trade-At introduces significant market structure complexity. Trade-At, as it is proposed, is a more intensive set of order protection rules. Under the current rules, exchanges must route orders to other exchanges if they cannot match or better the pricing of away markets. Under Trade-At, something similar will be true, except that exchanges not only will need to offer a greater amount of price improvement, Trade-At also precludes exchanges from fully leveraging their hidden reserve orders. Exchanges will only be allowed to match displayed liquidity. Once their displayed liquidity is exhausted, exchanges will be forced to route to away markets displaying a similar price, even if the exchange has sufficient executable hidden liquidity at the same price. This reduces execution certainty.

While the desire to ban locked and crossed markets under Reg NMS had a logical and structurally sound premise, it came with significant unintended consequences. To help traders manage SEC Rules 610/611 banning locked and crossed markets, exchanges developed a series of complex order types to route, hide, and/or slide orders so not to lock or cross markets. These order types are at the crux of a number of traders' challenges with the current market structure. As the rules defining Trade-At establish more sophisticated order protection, it is only natural to assume exchanges will need to develop a new suite of order types, with similar or worse unintended consequences to those of the rule banning locked and crossed markets.

The short-term duration of this pilot is also problematic. The programing for this market structure intricacy will be challenging, significant, and require massive testing. If not performed

properly, we could be opening up the industry to significant systemic risk, such as we witnessed during Knight's challenges with a rogue algorithm in the equities market (August 2012) and those of Goldman with a rogue options algorithm (August 2013).

In addition to the one-year Pilot not being long enough to truly test the premise of the JOBS Act's goals to increase the amount of IPOs and American jobs, a one-year Pilot duration requiring this amount of extensive technology development may not be the best use of the industry's resources, particularly given the systematic risk challenges posed by Trade-At.

### **Who Will Quote and Make Markets?**

One of the benefits championed by those in favor of widening the tick size would be that, as MPVs widened, markets would slow down. It was assumed that since moving to the next price point would cost a nickel rather than a penny, the cost of jumping to the next price point would go up by 500%, so markets would stay more stable and penny volatility would decline.

A slower market, it has been posited, will attract more traditional market makers, as well as allowing traditional investors the ability to provide liquidity, thus diminishing the impact of high-frequency firms.

This will not be the case.

While the cost of price jumping will escalate with the widening spread, so will the profit to market makers. This will only increase the competition to provide liquidity and make the top of book even more fiercely competitive. So while more liquidity may pool at nickels, the speed factor and importance of being at the top of the queue will only increase. Widening spreads will also make the cost of reversion (getting picked off) even more costly. The increasing cost of reversion will inhibit larger investors from showing their hands (posting). While you would assume this would push institutions to use more market (or marketable limit) orders, the cost of these orders would increase because each time they cross the spread, it will be 250% more expensive than before (2.5 cents instead of 0.5 cents at a 1MPV increment). This will push more institutional flow into mid-point dark pools or exchange programs.

Trading in the dark, however, won't be easy either, as a number of exchanges currently have hidden resting order types that do not interact with large-sized orders (Arca Tracking Order, NASDAQ Supplemental, DirectEdge Route Peg). We can expect market makers will use this functionality to interact with retail orders and duck out of the way of larger orders. This will make larger orders increasingly harder to execute. It will force market makers to use algorithms to break larger orders into smaller pieces and interact with the market the same way they do today – that is, quote in small size and get out of the way of anything that looks like a larger order, creating greater volatility for firms trying to execute in size.

These factors will only increase the importance of speed and will cause few if any boutiques to become market makers as the level of investment will be high and they will be competitively behind the current crop of market makers. Investors also won't quote as the cost of information leakage and reversion will increase dramatically.

This leaves banks as a last layer of liquidity provision for investors; however, banks will have a harder time making markets as Basel III makes bank capital more expensive and the Volcker Rule puts banks' proprietary trading out of business. So who is left?

The market infrastructure will remain fragmented; the pressure to be at the top of book will become even greater; and institutions will want to trade at the mid in the dark, but will have a harder time interacting in the dark, as the cost of adverse selection only increases. In addition, the cost of technology and competition will only go up as spreads widen. Sounds like a job for high-frequency market makers.

If high-frequency firms remain in the market-making business, we can only assume that, in the future, the displayed liquidity will react similarly to the way in which it does today: scattering when a large trade arrives. While trade size and displayed liquidity most likely will increase, as spreads widen, firms will only be able to access a fraction (and maybe the same fraction) of displayed liquidity as they do today.

To recap the liquidity provisioning discussion:

- Markets won't slow down;
- Competition to be top of book will become even fiercer;
- Less sophisticated market makers will not show up, as the cost to develop market-making infrastructure not only won't go down but, ironically, may increase;
- Firms that don't invest in trading infrastructure will most likely find themselves being picked off by higher-frequency traders as the penalty for being wrong only increases;
- The assumption that institutions will quote will not be correct, as the program will only increase the cost of reversion and information leakage; and
- This will push more flow into the dark as traders try to match at the midpoint.

The challenge with the Pilot program is that there are a lot of moving parts; the program introduces significant complexities and programming challenges and will be too short to demonstrate its intended purposes. Because of this, the definition of its success is uncertain.

## **Conclusion**

In summary, Pilot 1 will most likely cause markets to go dark. If firms can execute at any increment, why trade only at the nickel? This will create a tremendous incentive to trade in the dark. Given trading increments are not changed, we would expect to see the least detrimental impact to market efficiency under Pilot 1, unless so much trades outside of the displayed quote that market makers become frustrated, and stop competitively quoting and price discovery fails. If this occurs, this could have a very detrimental impact.

With Pilots 2 and 3, we will see liquidity decrease. As we widen spreads, there will be fewer trading opportunities and the cost to trade will increase. We will also not see new traditional market makers come into the market and speed will only become more important as the benefit to being on the top of the book, and for that matter getting out of the way, will only increase. In Pilot 3, we will see exchange market shares grow; but, overall, volume will most certainly decline, as the incentive to trade in the dark, the penalty of reversion and adverse selection, and the cost of information leakage only increase. In addition, Trade-At will significantly increase market complexity and reduce execution certainty, as exchanges will not be able to tap into

hidden reserves before routing to away markets. In addition, the one-year duration gives firms pause to significantly invest, as why invest if the future is uncertain? This could give rise to a calamity and increase systemic risk.

At the end of the day, the only way we can measure success is by market efficiency and, more specifically, the market efficiency at the exchange level, not the client level. By this success rubric, all of these pilots will fail. By almost any measure (except larger displayed size, larger transaction size and growth in on-exchange market share in Pilot 3), the current market structure (i.e., the control group) will have displayed not only better, but demonstrably better market quality statistics than any of the Pilots.

While I am not confident that we will see positive results for any of these Pilots and don't believe that any of them will cause any more research to be written, stimulate the growth of public companies, create more jobs, or make the market more efficient, I do believe we should move forward with a Pilot. There are enough market structure naysayers and questions about the impact of spreads on the wider economy that it is important for these tests to be run. That said, I would urge the Commission to move forward only with Pilots 1 and 2. The Trade-At provision creates significant market complexity and programing intricacies for slim, if any, benefit.

While I do not believe the Pilot will be successful, the Tick-Size Pilot program is important. The US equity market structure is tremendously complex and critical to the functioning of our economy. While the IPO problem at which the JOBS Act was aimed may already be in the process of being solved because of Sarbanes Oxley carve-outs and confidential filing provisions, we need to know more definitively whether adjusting tick sizes will improve our markets for small- and mid-sized companies. It is categorically unacceptable for the number of publicly traded companies to decline by almost 50% over a two decade span; and if a few short-term pilots can give us insight one way or another into these disturbing trends, then we should absolutely get out our yardsticks and try.

That said, with 2014 setting up to be a record year for IPOs, without any tick adjustment, once we learn that spreads are not the cause of our declining IPO rate and lackluster jobs outlook, maybe we can look at other ills that may be having a greater impact on these critical and disturbing trends.

Thank you for reading my views on the Tick-Size Pilot. Of course, if you are interested, I am very happy to discuss these issues in further detail.

Regards,

A handwritten signature in black ink, appearing to read "Larry Tabb", with a stylized, cursive script.

Larry Tabb  
Founder & CEO  
TABB Group